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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,915

10/26/2005

Neville Hedrick

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EXAMINER

ANDRISH, SEAN D

ART UNIT

PAPER NUMBER

3609

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/539,915

Applicant(s)

HEDRICK, NEVILLE

Examiner

Sean D. Andrish

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 - 15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/20/2006 and 6/16/2005.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "46". Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1, 2, 3, 6, 7, 10, 11, and 12 rejected under 35 U.S.C. 102(a) as being anticipated by Xu et al. (US 2002/0081159).

Regarding claim 1, Xu et al. discloses an anchor bolt (19) comprising a shaft (anchoring element portions 25, 30, and 40) formed of a solid metal bar, the shaft having a first end (40) and a second end (25), the shaft having a relatively wide portion adjacent the first end (40) and a

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relatively narrow portion (25) adjacent the wide portion, an anchor member having a longitudinal bore (longitudinal aperture 24), and the longitudinal bore having at least a portion of less dimension than the relatively wide portion (30) (see Figure 3 and paragraphs 0027 and 0028 of the Specification). Examiner notes that no dimension was specified in the statement “the longitudinal bore having at least a portion of less dimension than the relatively wide portion” and that the statement was interpreted as indicating that at least a portion of the longitudinal bore is of a smaller width than the wide portion of the shaft. As illustrated in Figure 3, the dimension of the bore is clearly smaller than the wide portion on the shaft.

Regarding claim 2, Xu et al. discloses an anchor bolt as discussed previously and further discloses that the narrow portion of the shaft (25) is a relatively short section of the shaft adjacent the wide portion (30) (see Figure 3).

Regarding claim 3, Xu et al. discloses an anchor bolt as discussed previously and further discloses that the narrow portion of the shaft (25) extends from the wide portion (30) to the second end of the shaft (21) (see Figure 3).

Regarding claim 6, Xu et al. discloses an anchor bolt as discussed previously and further discloses that the anchor is formed of heat treated steel (see paragraph 0039 of the Specification).

Regarding claim 7, Xu et al. discloses an anchor bolt as discussed previously and further discloses that the anchor member has a relatively wide portion (20) adjacent the wide portion of the shaft (30) and a portion tapering inwardly towards the second end of the shaft (21) (see Figure 3).

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Regarding claim 10, Xu et al. discloses and anchor bolt as discussed previously and further discloses a rock engaging plate (bearing plate 50) mounted about the shaft (rearward portion 40) adjacent the second end (forward portion 25) (see Figure 3).

Regarding claim 11, Xu et al. discloses and anchor bolt as discussed previously and further discloses a stop portion (bearing plate front surface 52) mounted about the shaft (rearward portion 40) adjacent the second end (forward portion 25) (see Figure 4B).

Regarding claim 12, Xu et al. discloses and anchor bolt as discussed previously and further discloses a stop portion (bearing plate front surface 52) is a welding ring (see description of bearing plate in paragraph 0032 of the Specification) of relatively hard material (see paragraph 0039 of the Specification).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 5, 8, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al. (US 2002/0081159) in view of Maltby (US 2005/0042037).

Regarding claim 4, Xu et al. discloses an anchor bolt as discussed previously, but fails to disclose a debonding sheath. Maltby teaches that it is known to use a debonding sheath (32) along the length of the shaft (12) in regions apart from the anchor member (see Figure 2 and paragraph 0018 of the Specification) to prevent the shaft from bonding with the grout. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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combine the anchor bolt as described by Xu et al. with a debonding sheath as taught by Maltby to prevent the shaft from bonding with the grout of the anchor assembly.

Regarding claim 5, Xu et al. discloses an anchor bolt as discussed previously, but fails to disclose a debonding sheath extending the full length of the shaft apart from the region at which the anchor member is disposed. Maltby teaches a debonding sheath (32) along the length of the shaft (12) in regions apart from the anchor member (see Figure 2 and paragraph 0018 of the Specification) to prevent the shaft from bonding with the grout. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the anchor bolt as described by Xu et al. with a debonding sheath as taught by Maltby to prevent the shaft from bonding with the grout of the anchor assembly.

Regarding claim 8, Xu et al. discloses an anchor bolt as discussed previously, but fails to disclose that the longitudinal bore of the anchor member is treated to prevent sticking between the anchor member and the shaft. Maltby teaches that the longitudinal bore can be metallurgically treated, such as nitrocarburised, to prevent molecular welding to the shaft as the shaft is drawn through the anchor (see paragraph 0016 of the Specification). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the anchor bolt as described by Xu et al. with the metallurgical treatment as taught by Maltby to prevent sticking between the anchor member and the shaft.

Regarding claim 9, Xu et al. discloses an anchor bolt as discussed previously, but fails to disclose that the anchor member is nitrided in the longitudinal bore to prevent sticking between the anchor member and the shaft. Maltby teaches that the longitudinal bore can be metallurgically treated, such as nitrocarburised (considered to meet the limitation “nitrided”), to

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prevent molecular welding to the shaft as the shaft is drawn through the anchor (see paragraph 0016 of the Specification). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the anchor bolt as described by Xu et al. with the metallurgical treatment as taught by Maltby to prevent the shaft from becoming molecularly welded to the anchor assembly.

Regarding claim 14, Xu et al. discloses an anchor bolt as discussed previously, but fails to disclose that the anchor member is deformed to form at least a portion of the longitudinal bore of reduced dimension and a corresponding portion of the shaft of similarly reduced dimension. Maltby teaches that the anchor member is deformed to form at least a portion of the longitudinal bore of reduced dimension and a corresponding portion of the shaft (12) of similarly reduced dimension (see Figure 2) due to the force exerted by the anchor member on the shaft and bore. Examiner notes that no dimension was specified in the statement "at least a portion of the longitudinal bore of reduced dimension and a corresponding portion of the shaft of similarly reduced dimension" and that the statement was interpreted as indicating that at least a portion of the longitudinal bore and the corresponding portion of the shaft is of a smaller width than the wide portion of the shaft. As illustrated in Figure 2, the dimension of the bore is clearly smaller than the wide portion on the shaft. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the use of an anchor member about a shaft and longitudinal bore would deform the shaft and the longitudinal bore and reduce their dimensions due to the force exerted by the anchor member.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al. (US 2002/0081159) in view of Gaudreau et al. (6,390,735). Xu et al. discloses an anchor bolt as

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discussed previously, but fails to disclose a mixing paddle attached to the first end of the shaft. Gaudreau et al. teaches that it is known to attach a mixing paddle (resin mixer 1) to the end of a shaft as part of a yielding rock bolt in order to mix the components of the chemical grout that is used to secure the anchor bolt in the well bore. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the anchor bolt as described by Xu et al. with the resin mixer as taught by Gaudreau et al. in order to mix the components of the chemical grout that is used to secure the anchor bolt in the well bore.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al. (US 2002/0081159) in view of Fergusson (US 2005/0158127). Xu et al. discloses an anchor bolt as discussed previously, but fails to disclose a method of securing a rock face by drilling a hole in a rock face, inserting a rock bolt into said hole, filling the hole with bonding material such that if an adjacent portion of the rock face breaks away the wide portion of the shaft is extruded through the anchor member so that the rock bolt yields. Fergusson teaches the use of a rock bolt having a tendon (301) that is able to yield and thereby control movement of unstable rock strata. Fergusson teaches that the rock bolt is inserted into a rock face and a grout anchor (10) is clamped to the tendon (301). When a sufficient tensile load is applied to the tendon (301), the tendon (301) breaks through the anchor (300) and is plastically deformed, thus dissipating energy (see Figures 11 and 14 and paragraph 0038 of the Specification) and maintaining the stability of the rock face. Since the anchor bolt as described by Xu et al. is intended for use with unstable rock, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the anchor bolt as described by Xu et al. with the rock bolt as taught by

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Fergusson to control movement of an unstable rock strata. Given the structure of Xu et al. in view of Fergusson, the steps as described in claim 15 would be inherently performed.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent Application Publication, Publication Number: US 2005/0207851 A1, ROCK BOLT, William David Ortlepp, Sep. 22, 2005. Ortlepp teaches an anchor device for use as a rock bolt to reinforce a rock face. The anchor device is capable of yielding in a controlled manner when the load on the device exceeds a predetermined level.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean D. Andrish whose telephone number is (571) 270-3098. The examiner can normally be reached on Mon - Fri, 7:30am - 5:00pm, Alternate Fri off, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Victor Batson can be reached on (571) 272-6987. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Victor Batson
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Art Unit 3600

SDA
5/23/2007